

CLAIMS

What is claimed is:

1. A valve system for a well, comprising:
an isolation string, comprising
an upper packer; and
an isolation pipe in mechanical communication with the upper packer, wherein the isolation pipe comprises a pressure activated valve, an object activated valve; and
an object holding service tool coupled to the object activated valve and adapted to release an object to engage the object activated valve.
2. The valve system of claim 1, wherein the object holding service tool comprises a holding barrel having a bore in which an object is slidably and sealingly engaged, the object holding service tool being adapted to slidably release the object with sufficient pressure applied to the object to cause a restraining device holding the object to release the object.
3. The valve system of claim 1, wherein the pressure activated valve comprises:
a tube having at least one opening;
a sleeve being movably connected to the tube, wherein the tube and sleeve are configurable in at least locked-closed, unlocked-closed and open configurations, wherein the sleeve covers the at least one opening in the locked-closed and unlocked-closed configurations and the sleeve does not cover the at least one opening in the open configuration;
a lock between the sleeve and the tube which locks the sleeve and tube in the locked-closed configuration; and

a pressure area on the sleeve, wherein a pressure acting on the pressure area unlocks the lock and configures the tube and sleeve between the locked-closed and unlocked-closed configurations.

4. The valve system of claim 1, wherein the object activated valve comprises:

a tube having at least one opening;

a sleeve being movably connected to the tube, wherein the sleeve covers the at least one opening in a closed configuration and the sleeve does not cover the at least one opening in an open configuration; and

an object seat in mechanical communication with the sleeve, wherein the seat receives an object for manipulating the valve from the open configuration to the closed configuration.

5. The valve system of claim 4, further comprising a piston coupled to the sleeve to assist the sleeve in covering the at least one opening.

6. The valve system of claim 1, further comprising a production screen, wherein fluid passing from the exterior of the production screen is communicable with the pressure activated valve and the object activated valve.

7. The valve system of claim 6, wherein the production screen is attached to a screen pipe separate from the pressure activated valve and the object activated valve.

8. The valve system of claim 6, wherein the production screen is wrapped around the outside of the pressure activated valve and the object activated valve.

9. The valve system of claim 1, further comprising a lower packer in mechanical communication with the isolation pipe.

10. A method for isolating a production zone of a well, comprising:
running-in an isolation string with an object holding service tool having an object held therewith into the well, the isolation string comprising a pressure activated valve, and an object activated valve;
setting the isolation string in the casing adjacent perforations in the casing;
pressurizing an area of the object to cause the object to be released from the object holding service tool, whereby the object travels to the object activated valve;
at least partially closing the object activated valve with the released object;
and
withdrawing the object holding service tool from the well.
11. The method of claim 10, wherein the object activated tool slidably releases the object upon the pressurizing the area by shearing a restraining device.
12. The method of claim 10, wherein the setting comprises setting a packer above the production zone, wherein the packer is in mechanical communication with the isolation string.
13. The method of claim 10, further comprising stinging a production string into the isolation string, and opening the pressure activated valve.
14. The method of claim 10, further comprising assisting in closing the object activated valve by pressurizing an area of a piston coupled to a sliding sleeve of the object activated valve.
15. A valve system for a well, comprising:
an isolation string, comprising:
an upper packer;

a pressure activated, double-sub valve comprising first and second concentric subs, wherein the double-sub valve is in mechanical communication with the upper packer;

an isolation pipe in mechanical communication with the first sub of the double-sub valve, wherein the isolation pipe comprises an object activated valve; and

a production pipe in mechanical communication with the second sub of the double-sub valve; and

an object holding service tool coupled to the object activated valve and comprising a holding barrel having a bore in which an object is slidably and sealingly engaged, the object holding service tool being adapted to slidably release the object with sufficient pressure applied to the object to cause a restraining device holding the object to release the object.

16. The valve system of claim 15, wherein the object holding service tool is adapted to slidably release the object when the restraining device holding the object is sheared through sufficient pressure applied to the object.

17. The valve system of claim 15, wherein the double-sub valve comprises an annulus-to-annulus flow valve, comprising:

an upper annulus defined by upper outer and inner tubes, wherein the upper inner tube is concentric within the upper outer tube;

a lower annulus defined by lower inner and outer tubes, wherein the lower inner tube is concentric within the lower outer tube;

a sleeve positioned within the upper and lower inner tubes, wherein the sleeve is configurable in at least locked-closed, unlocked-closed and open configurations, wherein the sleeve partially defines a port between the upper and lower annuluses in the open configuration and defines a seal between the upper and lower annuluses in the locked-closed and unlocked-closed configurations; and

a pressure chamber which communicates with the sleeve to move the sleeve from the locked-closed configuration to the unlocked-closed configuration.

18. The valve system of claim 15, wherein the double-sub valve is an annulus-to-interior valve, comprising:

an outer tube;

an inner tube concentrically positioned within the outer tube;

at least one port between an interior of the inner tube and an annulus between the inner and outer tubes;

a sleeve positioned within the inner tube, wherein the sleeve is configurable in at least locked-closed, unlocked-closed and open configurations, wherein the sleeve covers the at least one port in the locked-closed and unlocked-closed configurations and the sleeve does not cover the at least one port in the open configuration; and

a pressure chamber which communicates with the sleeve to move the sleeve from the locked-closed configuration to the unlocked-closed configuration.

19. The valve system of claim 15, wherein the object activated valve comprises:

a tube having at least one opening;

a sleeve having at least one other opening and being movably connected to the tube, wherein the at least one opening and the at least one other opening are adjacent in an open configuration and nonadjacent in a closed configuration; and

an object seat in mechanical communication with the sleeve, wherein the seat receives an object for manipulating the valve between the open and closed configurations.

20. The valve system of claim 15, wherein the isolation pipe is stingable into another isolation string.

21. The valve system of claim 15, wherein the production pipe is stingable into another isolation string.

22. The valve system of claim 15, further comprising a production screen attached to the production pipe, wherein fluid passing through the production screen is communicable with the double-sub valve and the object activated valve.

23. The valve system of claim 15, further comprising a lower packer in mechanical communication with the isolation pipe.

24. A method for isolating a production zone of a well, comprising:
running-in an isolation string with an object holding service tool having an object held therewith into the well, wherein the isolation string comprises a double-sub valve, and an object activated valve;
setting the isolation string in the casing adjacent perforations in the casing;
pressurizing an area on the object to cause the object to be released from the object holding service tool, whereby the object travels to the object activated valve;
at least partially closing the object activated valve with the released object;
and
withdrawing the object holding service tool from the isolation string.

25. The method of claim 24, wherein the object is released by applying sufficient pressure to the object to shear a restraining device holding the object.

26. The method of claim 24, wherein the setting comprises setting a packer above the production zone.

27. The method of claim 24, wherein the setting comprises setting a packer above the production zone and stinging the isolation string into another isolation string.

28. The method of claim 24, wherein the closing comprises reconfiguring the object activated valve from an open configuration to a closed configuration with the object.

29. The method of claim 24, further comprising stinging a production string into the double-sub valve of the isolation string, and opening the double-sub valve.

30. The method of claim 24, further comprising assisting in closing the object activated valve by pressurizing an area of a piston coupled to a sliding sleeve of the object activated valve.

31. A valve system for a well, comprising:
an object;

an object holding service tool comprising a holding barrel having a bore in which the object is slidably and sealingly engaged, the object holding service tool being adapted to slidably release the object with sufficient pressure applied to the object to cause a restraining device holding the object to release the object, and

an object activated valve, comprising:

a tube having at least one opening,

a sleeve being movably connected to the tube, wherein the sleeve covers the at least one opening in a closed configuration and the sleeve does not cover the at least one opening in an open configuration, and

an object seat in mechanical communication with the sleeve, wherein the seat receives the object for manipulating the valve from the open configuration to the closed configuration.

32. The valve system of claim 31, further comprising a pressure activated valve coupled to the object holding service tool.

33. The valve system of claim 31, further comprising a sleeve coupled to the object holding service tool and adapted to allow actuation of the object holding service tool.

34. The valve system of claim 31, further comprising a piston adapted to at least partially assist in closing the object activated valve.

35. An isolation string for a wellbore, comprising:
an upper packer;
an isolation pipe in mechanical communication with the upper packer,
wherein the isolation pipe comprises a pressure activated valve; and
the valve system of claim 31 coupled to the isolation string.

36. An object holding service tool to actuate a downhole valve in a well, comprising a holding barrel having a bore adapted to slidably and sealingly engage an object held therewith, the object holding service tool being adapted to slidably release the object with sufficient pressure applied to the object to cause a restraining device holding the object to release the object.

37. The object holding service tool of claim 36, wherein the object holding service tool is adapted to slidably release the object when the restraining device holding the object is sheared through sufficient pressure applied to the object.

38. An isolation string for a wellbore, comprising an object activated valve adapted to receive the object from the object holding service tool of claim 36 and cause a flow path change in the valve.

39. The isolation string of claim 38, further comprising a pressure activated valve coupled to the object activated valve.

40. A valve system for a well having multiple zones for isolation, comprising:
an isolation string, comprising:

a lower isolation section, comprising:

a lower section upper packer; and

a lower section isolation pipe in mechanical communication with the lower section upper packer, wherein the lower section isolation pipe comprises a pressure activated valve and a lower section object activated valve;

an upper isolation section, comprising:

an upper section upper packer;

a double-sub valve comprising first and second concentric subs, wherein the double-sub valve is in mechanical communication with the upper section upper packer;

an upper section isolation pipe in mechanical communication with the first sub of the double-sub valve, wherein the isolation pipe comprises an upper section object activated valve; and

a production pipe in mechanical communication with the second sub of the double-sub valve;

wherein the upper section isolation pipe and the production pipe string into the lower section upper packer; and

an object holding service tool, comprising a holding barrel having a bore in which an object is slidably and sealingly engaged, the object holding service tool being adapted to slidably release the object with sufficient pressure applied to

the object to cause a restraining device holding the object to release the object, the object holding service tool being coupled to at least one of the isolation sections.

41. The valve system of claim 40, wherein the object holding service tool is adapted to slidably release the object when the restraining device holding the object is sheared through sufficient pressure applied to the object.

42. A downhole assembly, comprising:
a. an object;
b. an object holding service tool adapted to selectively hold the object; and
c. a means for releasing the object from the object holding service tool.

43. The downhole assembly of claim 42, further comprising a object activated valve adapted to receive the object upon release from the object holding service tool.

44. The downhole assembly of claim 43, wherein the object activated valve comprises a piston adapted to at least partially assist in closing the object activated valve.

45. A valve system for a well, comprising:
an isolation string, comprising
an upper packer; and
an isolation pipe in mechanical communication with the upper packer, wherein the isolation pipe comprises an operable valve and an object activated valve; and
an object holding service tool coupled to the object activated valve and adapted to release an object to engage the object activated valve.

46. The valve system of claim 45, wherein the object activated valve comprises:

a tube having at least one opening;

a sleeve being movably connected to the tube, wherein the sleeve covers the at least one opening in a closed configuration and the sleeve does not cover the at least one opening in an open configuration; and

an object seat in mechanical communication with the sleeve, wherein the seat receives an object for manipulating the valve from the open configuration to the closed configuration.

47. The valve system of claim 46, further comprising a piston coupled to the sleeve to assist the sleeve in covering the at least one opening.